

REMARKS

The Office Action dated January 20, 2004, has been received and reviewed.

Claims 1-26 are currently pending and under consideration in the above-referenced application. Each of claims 1-26 stands rejected.

Reconsideration of the above-referenced application is respectfully requested.

Rejections Under 35 U.S.C. § 112, First Paragraph

Claims 1, 7, 11, and 19 have been rejected under 35 U.S.C. § 112, first paragraph, for reciting subject matter that was allegedly not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

Specifically, claims 1 and 7 stand rejected for reciting a structure which includes a vertical sidewall portion and an inclined sidewall portion that surrounds the vertical sidewall portion. Claims 11 and 19 have been rejected for reciting structures that include peripheries with a first portion that is surrounded by a second portion.

Each of independent claims 1, 7, 11, and 19 has been amended to more clearly recite the intended subject matter. In particular, independent claims 1 and 7 have been amended to recite structures that include central regions and tapered regions. The central regions of the structures of independent claims 1 and 7, which include vertical sidewalls, are at least partially surrounded by the tapered regions, which include inclined sidewalls. Independent claims 11 and 19 have been amended to recite structures that include at least one element that surrounds at least a portion of at least one substantially pointed tip and that includes a surface that tapers toward and exposed end of the at least one substantially pointed tip.

As none of the amendments to independent claims 1, 7, 11, or 19 alters the scope of subject matter to which these claims were previously drawn, it is respectfully submitted that all of the elements of each of these claims are entitled to the broadest reasonable interpretation, including interpretation under the doctrine of equivalents.

It is respectfully submitted that the specification of the above-referenced application provides an adequate description of such subject matter to support the recitation thereof in

independent claims 1, 7, 11, and 19. Each of these claims, therefore, complies with the requirements of 35 U.S.C. § 112, first paragraph, and is condition for allowance thereunder.

Rejections Under 35 U.S.C. § 112, Second Paragraph

Claims 1, 7, 11, and 19 also stand rejected under 35 U.S.C. § 112, second paragraph, for purportedly being indefinite.

It is respectfully submitted that, in view of the clarifications that have been provided by the above-described amendments to independent claims 1, 7, 11, and 19, each of these claims meets the definiteness requirement of the second paragraph of 35 U.S.C. § 112 and, therefore, is in condition for allowance under 35 U.S.C. § 112, second paragraph.

Rejections Under 35 U.S.C. § 102(b)

Claims 1-4, 11-16, and 19-24 stand rejected under 35 U.S.C. § 102(b) for being directed to subject matter which is assertedly anticipated by the subject matter described in U.S. Patent 5,647,785 to Jones et al. (hereinafter “Jones”).

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Jones describes field emission tips 15 that have sidewalls that are oriented vertically relative to the substrates thereof and tops with inclined surfaces that form the apices 42 of the field emission tips 15. *See, e.g.*, FIGs. 6I and 7B through 9.

Independent claim 1, as amended and presented herein, recites a field emission tip that includes a structure comprising a central region, a tapered portion surrounding the central region, and an apex at an end of the central region. The central region of the structure of amended independent claim 1 includes a substantially vertical sidewall, while the tapered portion includes an inclined surface.

It is respectfully submitted that Jones does not expressly or inherently describe, or anticipate, a structure with a central region that is surrounded by a tapered portion with an inclined surface, as required by amended independent claim 1. Therefore, amended independent claim 1 recites subject matter which, under 35 U.S.C. § 102(b), is allowable over that described in Jones.

Claims 2-4 are each allowable, among other reasons, for depending either directly or indirectly from claim 1, which is allowable.

Independent claim 11, as amended and presented herein, is drawn to a field emission array that includes a substrate, at least one substantially pointed tip protruding from the substrate, and at least one element surrounding at least a portion of the at least one substantially pointed tip. The at least one substantially pointed tip has a periphery with a first portion which is oriented substantially perpendicularly relative to the substrate, as well as a second portion which is oriented at an angle to the substrate to form an apex. The at least one element has a surface that tapers toward an exposed end of the at least one substantially pointed tip.

Jones neither expressly nor inherently describes a field emission array with at least one substantially pointed tip surrounded by at least one element with a surface that tapers toward an exposed end of the at least one substantially pointed tip.

Therefore, Jones does not anticipate each and every element of amended independent claim 11, as would be required to maintain the 35 U.S.C. § 102(b) rejection of independent claim 11.

Each of claims 12-16 is allowable, among other reasons, for depending either directly or indirectly from claim 11, which is allowable.

Claim 16 is additionally allowable since Jones includes no express or inherent description of an element that surrounds the emitter tip 15 thereof and that comprises redeposition material.

Independent claim 19, as amended and presented herein, is directed to a field emission display that includes an anode display screen, a cathode spaced apart from the anode display screen, and a substantial vacuum between the anode display screen and the cathode. The cathode includes a substrate, at least one substantially pointed tip protruding from the substrate, at least one element surrounding the at least one substantially pointed tip and including a surface that tapers

toward an exposed end of the at least one substantially pointed tip, and a gate through which the at least one substantially pointed tip is exposed. In addition, a voltage source is associated with the anode display screen, the gate, and the cathode to provide a potential difference between the cathode and the gate, and between the cathode and the anode display screen.

Again, Jones does not expressly or inherently describe a structure that includes at least one substantially pointed tip surrounded by at least one element with a surface that tapers toward an exposed end of the at least one substantially pointed tip.

Therefore, Jones does not anticipate each and every element of amended independent claim 19, as would be required to maintain the 35 U.S.C. § 102(b) rejection of independent claim 19.

Claims 20-24 are each allowable, among other reasons, for depending either directly or indirectly from claim 19, which is allowable.

Claim 24 is further allowable since Jones includes no express or inherent description of an element that surrounds the emitter tip 15 thereof and that comprises redeposition material.

For these reasons, it is respectfully requested that the 35 U.S.C. § 102(b) rejections of claims 1-4, 11-16, and 19-24 be withdrawn.

Rejections Under 35 U.S.C. § 103(a)

Claims 5-10, 16-18, and 24-26 stand rejected under 35 U.S.C. § 103(a).

The standard for establishing and maintaining a rejection under 35 U.S.C. § 103(a) is set forth in M.P.E.P. § 706.02(j), which provides:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Jones in View of Hobart

Claims 5-10, 17, 18, 25 and 26 stand rejected under 35 U.S.C. § 103(a) for reciting subject matter which is purportedly unpatentable over the teachings of Jones, in view of teachings from U.S. Patent 6,201,342 to Hobart et al. (hereinafter "Hobart").

Claims 5 and 6 are both allowable, among other reasons, for depending directly from claim 1, which is allowable.

Independent claim 7, as amended and presented herein, recites a field emission tip that includes a central region including a periphery with a substantially vertical portion, a tapered portion that surrounds and includes an inclined surface that extends toward an exposed end of the central region, and an apex at the top of the central region.

It is respectfully submitted that neither Jones nor Hobart, taken either separately or together, teaches or suggests a field emission tip that includes a central region with a periphery that includes a substantially vertical portion and a tapered portion that surrounds the central region. Further, Jones and Hobart both lack any teaching or suggestion of a field emission tip with a tapered portion that has an inclined surface which extends toward an exposed end of a central region thereof.

As Jones and Hobart do not teach or suggest each and every element of amended independent claim 7, it is respectfully submitted that the teachings of these references do not support a *prima facie* case of obviousness against the subject matter recited in amended independent claim 7.

Therefore, under 35 U.S.C. § 103(a), amended independent claim 7 recites subject matter which is allowable over that taught in Jones and Hobart.

Claims 8-10 are each allowable, among other reasons, for depending either directly or indirectly from claim 7, which is allowable.

Claims 18 is allowable, among other reasons, for depending directly from claim 11, which is allowable.

Claims 25 and 26 are both allowable, among other reasons, for depending directly from claim 19, which is allowable.

Jones

Claims 16 and 24 stand rejected under 35 U.S.C. § 103(a) for reciting subject matter which is allegedly unpatentable over the subject matter taught in Jones.

Claim 16 is allowable, among other reasons, for depending from claim 11, which is allowable.

Claim 24 is allowable, among other reasons, for depending from claim 19, which is allowable.

Claims 16 and 24 are additionally allowable since Jones lacks any teaching or suggestion that redeposition material may even be present when the methods described therein are conducted, as is evident from the lack of description therein of processing for removal of redeposition material.

Moreover, the Office has not provided any support for the proposition that one of ordinary skill in the art would have been motivated to use an etching process that redeposits material in the techniques that are described in Jones. Rather, the Office has taken the position that redeposited material “does not contribute to the functioning of the field emission array . . .” (Office Action, page 7) indicating that one of ordinary skill in the art would not have been motivated to use an etching process that redeposits material, as would necessarily occur to form the structures recited in claims 16 and 24.

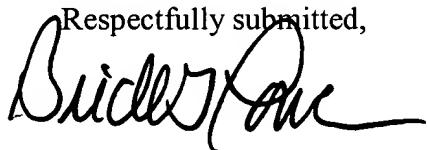
For these reasons, it is respectfully submitted that a *prima facie* case of obviousness has not been established against claim 16 or claim 24. Therefore, under 35 U.S.C. § 103(a), claims 16 and 24 are both directed to subject matter which is allowable over the subject matter taught in Jones.

In view of the foregoing, withdrawal of the 35 U.S.C. § 103(a) rejections of claims 5-10, 17, 18, 25 and 26 is respectfully requested.

CONCLUSION

It is respectfully submitted that each of claims 1-26 is allowable. An early notice of the allowability of each of these claims is respectfully solicited, as is an indication that the above-referenced application has been passed for issuance. If any issues preventing allowance of the above-referenced application remain which might be resolved by way of a telephone conference, the Office is kindly invited to contact the undersigned attorney.

Respectfully submitted,



Brick G. Power
Registration No. 38,581
Attorney for Applicants
TRASKBRITT, PC
P.O. Box 2550
Salt Lake City, Utah 84110-2550
Telephone: 801-532-1922

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